## SEQUENCE LISTING

<110> BioImage A/S <120> Novel Fluorescent Proteins <130> 25158PC1 <160> 8 <170> FastSEQ for Windows Version 3.0 <210> 1 <211> 720 <212> DNA <213> Aequoria Victoria <220> <221> CDS <222> (1)...(717) <400> 1 atg gtg agc aag ggc gag gag ctg ttc acc ggg gtg gtg ccc atc ctg 48 Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu gte gag etg gae gge gae gta aac gge cac aag tte age gtg tee gge 96 Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly 20 gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc 144 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc aca cta gtg acc acc 192 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr 55 ctg tct tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag 240 Leu Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys 65 70 cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag 288 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu 85 95 ege ace ate tte tte aag gae gae gge aac tae aag ace ege gee gag 336 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 100 105 gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc 384 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly 120

atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac

432

| Ile   | Asp<br>130  | Phe  | Lys   | Glu  | Asp  | Gly<br>135                                   | Asn  | Ile  | Leu  | Gly                                   | His<br>140                             | Lys                                    | Leu  | Glu  | Tyr                                |     |
|---|---|--|---|--|--|--|--|--|--|---------------------------------------|--|--|--|--|------------------------------------|-----|
|   | tac<br>Tyr  |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    | 480 |
|   | atc<br>Ile  |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    | 528 |
|   | cag<br>Gln  |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    | 576 |
|   | gtg<br>Val  |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    | 624 |
|   | aaa<br>Lys<br>210                                       |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    | 672 |
|   | acc<br>Thr  |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    | 717 |
| taa   |   |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    | 720 |
|   |   |  |   |  |  |  |  |  |  |                                       |  |  |  |  |                                    |     |
|   | <2<br><2  | 210><br>211><br>212><br>213>   | 239<br>PRT  | uoria  | a Vio  | ctori  | La   |  |  |                                       |  |  |  |  |                                    |     |
|   | <2<br><2<br><2  | 211><br>212><br>213><br>400>   | 239<br>PRT<br>Aequ  |  |  |  |  |  | m:   |                                       |  | 1                                      |  | <b>~1</b> .  | •                                  |     |
| 1   | <2<br><2<br><2<br>Val                                   | 211><br>212><br>213><br>213><br>Ser  | 239<br>PRT<br>Aequ<br>2<br>Lys  | Gly<br>5   | Glu  | Glu  | Leu  |  | 10   |                                       |  |  |  | 15   |                                    |     |
| 1   | <2<br><2<br><2  | 211><br>212><br>213><br>100><br>Ser<br>Leu   | 239<br>PRT<br>Aequ<br>2<br>Lys  | Gly<br>5   | Glu  | Glu<br>Val                                   | Leu  | Gly  | 10<br>His  |                                       |  |  |  | 15   |                                    |     |
| 1<br>Val  | <2<br><2<br><2<br>Val                                   | 211><br>212><br>213><br>400><br>Ser<br>Leu<br>Glu  | 239<br>PRT<br>Aequ<br>2<br>Lys<br>Asp<br>20   | Gly<br>5<br>Gly  | Glu<br>Asp                                   | Glu<br>Val                                   | Leu<br>Asn<br>Tyr                          | Gly<br>25  | 10<br>His  | Lys                                   | Phe                                    | Ser                                    | Val<br>30  | 15<br>Ser  | Gly                                |     |
| 1<br>Val<br>Glu   | <2<br><2<br><2<br>Val<br>Glu<br>Gly<br>Thr              | 211><br>212><br>213><br>400><br>Ser<br>Leu<br>Glu<br>35  | 239<br>PRT<br>Aequ<br>2<br>Lys<br>Asp<br>20<br>Gly                                      | Gly<br>5<br>Gly<br>Asp   | Glu<br>Asp<br>Ala                            | Glu<br>Val<br>Thr<br>Pro                     | Leu<br>Asn<br>Tyr<br>40                    | Gly<br>25<br>Gly   | 10<br>His<br>Lys   | Lys<br>Leu                            | Phe<br>Thr                             | Ser<br>Leu<br>45                       | Val<br>30<br>Lys   | 15<br>Ser<br>Phe   | Gly<br>Ile                         |     |
| 1<br>Val<br>Glu<br>Cys<br>Leu                                   | <2<br><2<br><2<br>Val<br>Glu                            | 211><br>212><br>213><br>400><br>Ser<br>Leu<br>Glu<br>35<br>Thr   | 239<br>PRT<br>Aequ<br>2<br>Lys<br>Asp<br>20<br>Gly                                      | Gly<br>5<br>Gly<br>Asp   | Glu<br>Asp<br>Ala<br>Leu<br>Gln              | Glu<br>Val<br>Thr<br>Pro<br>55               | Leu<br>Asn<br>Tyr<br>40<br>Val             | Gly<br>25<br>Gly<br>Pro                                    | 10<br>His<br>Lys<br>Trp  | Lys<br>Leu<br>Pro<br>Tyr              | Phe<br>Thr<br>Thr<br>60                | Ser<br>Leu<br>45<br>Leu                | Val<br>30<br>Lys<br>Val                                    | 15<br>Ser<br>Phe<br>Thr  | Gly<br>Ile<br>Thr<br>Lys           |     |
| 1<br>Val<br>Glu<br>Cys<br>Leu<br>65                             | <2<br><2<br><2<br>Val<br>Glu<br>Gly<br>Thr<br>50        | 211><br>212><br>213><br>100><br>Ser<br>Leu<br>Glu<br>35<br>Thr   | 239<br>PRT<br>Aequ<br>2<br>Lys<br>Asp<br>20<br>Gly<br>Gly                               | Gly 5 Gly Asp Lys Val  | Glu Asp Ala Leu Gln 70                       | Glu<br>Val<br>Thr<br>Pro<br>55<br>Cys        | Leu<br>Asn<br>Tyr<br>40<br>Val             | Gly<br>25<br>Gly<br>Pro                                    | 10<br>His<br>Lys<br>Trp<br>Arg                                   | Lys<br>Leu<br>Pro<br>Tyr<br>75        | Phe<br>Thr<br>Thr<br>60<br>Pro         | Ser<br>Leu<br>45<br>Leu<br>Asp         | Val<br>30<br>Lys<br>Val                                    | 15<br>Ser<br>Phe<br>Thr<br>Met<br>Gln                            | Gly Ile Thr Lys 80                 |     |
| 1<br>Val<br>Glu<br>Cys<br>Leu<br>65<br>Gln                      | <2<br><2<br><2<br>Val<br>Glu<br>Gly<br>Thr<br>50<br>Ser | 211><br>212><br>213><br>400><br>Ser<br>Leu<br>Glu<br>35<br>Thr<br>Tyr                                    | 239 PRT Aequ  Lys Asp 20 Gly Gly Gly Phe  | Gly<br>5<br>Gly<br>Asp<br>Lys<br>Val<br>Phe<br>85                      | Glu<br>Asp<br>Ala<br>Leu<br>Gln<br>70<br>Lys | Glu<br>Val<br>Thr<br>Pro<br>55<br>Cys<br>Ser | Leu<br>Asn<br>Tyr<br>40<br>Val<br>Phe      | Gly<br>25<br>Gly<br>Pro<br>Ser<br>Met                      | 10<br>His<br>Lys<br>Trp<br>Arg<br>Pro                            | Lys<br>Leu<br>Pro<br>Tyr<br>75<br>Glu | Phe<br>Thr<br>Thr<br>60<br>Pro         | Ser<br>Leu<br>45<br>Leu<br>Asp         | Val<br>30<br>Lys<br>Val<br>His<br>Val                      | 15<br>Ser<br>Phe<br>Thr<br>Met<br>Gln<br>95                      | Gly Ile Thr Lys 80 Glu             |     |
| 1<br>Val<br>Glu<br>Cys<br>Leu<br>65<br>Gln<br>Arg               | <pre>&lt;2 &lt;2 &lt;2 Val Glu Gly Thr 50 Ser His</pre> | 211><br>212><br>213><br>400><br>Ser<br>Leu<br>Glu<br>35<br>Thr<br>Tyr<br>Asp<br>Ile<br>Phe               | 239<br>PRT<br>Aequal<br>2<br>Lys<br>Asp<br>20<br>Gly<br>Gly<br>Gly<br>Phe<br>Phe<br>100 | Gly<br>5<br>Gly<br>Asp<br>Lys<br>Val<br>Phe<br>85<br>Phe               | Glu Asp Ala Leu Gln 70 Lys Lys               | Glu Val Thr Pro 55 Cys Ser Asp               | Leu Asn Tyr 40 Val Phe Ala Asp Leu         | Gly<br>25<br>Gly<br>Pro<br>Ser<br>Met<br>Gly<br>105        | 10<br>His<br>Lys<br>Trp<br>Arg<br>Pro<br>90<br>Asn               | Lys Leu Pro Tyr 75 Glu Tyr            | Phe Thr Thr 60 Pro Gly Lys             | Ser Leu 45 Leu Asp Tyr                 | Val<br>30<br>Lys<br>Val<br>His<br>Val<br>Arg<br>110        | 15<br>Ser<br>Phe<br>Thr<br>Met<br>Gln<br>95<br>Ala               | Gly Ile Thr Lys 80 Glu Glu         |     |
| 1<br>Val<br>Glu<br>Cys<br>Leu<br>65<br>Gln<br>Arg               | Val Glu Gly Thr 50 Ser His Thr Lys Asp                  | 211><br>212><br>213><br>400><br>Ser<br>Leu<br>Glu<br>35<br>Thr<br>Tyr<br>Asp<br>Ile<br>Phe<br>115        | 239<br>PRT<br>Aequ<br>2<br>Lys<br>Asp<br>20<br>Gly<br>Gly<br>Gly<br>Phe<br>100<br>Glu   | Gly<br>5<br>Gly<br>Asp<br>Lys<br>Val<br>Phe<br>85<br>Phe               | Glu Asp Ala Leu Gln 70 Lys Lys Asp           | Glu Val Thr Pro 55 Cys Ser Asp               | Leu Asn Tyr 40 Val Phe Ala Asp Leu 120     | Gly<br>25<br>Gly<br>Pro<br>Ser<br>Met<br>Gly<br>105<br>Val | 10<br>His<br>Lys<br>Trp<br>Arg<br>Pro<br>90<br>Asn               | Lys Leu Pro Tyr 75 Glu Tyr Arg        | Phe Thr Thr 60 Pro Gly Lys Ile         | Ser Leu 45 Leu Asp Tyr Thr Glu 125     | Val<br>30<br>Lys<br>Val<br>His<br>Val<br>Arg<br>110<br>Leu | 15<br>Ser<br>Phe<br>Thr<br>Met<br>Gln<br>95<br>Ala<br>Lys        | Gly Ile Thr Lys 80 Glu Glu Gly     |     |
| 1<br>Val<br>Glu<br>Cys<br>Leu<br>65<br>Gln<br>Arg<br>Val<br>Ile | Val<br>Glu<br>Gly<br>Thr<br>50<br>Ser<br>His<br>Thr     | 211><br>212><br>213><br>100><br>Ser<br>Leu<br>Glu<br>35<br>Thr<br>Tyr<br>Asp<br>Ile<br>Phe<br>115<br>Phe | 239<br>PRT<br>Aequ<br>2<br>Lys<br>Asp<br>20<br>Gly<br>Gly<br>Phe<br>100<br>Glu<br>Lys   | Gly<br>5<br>Gly<br>Asp<br>Lys<br>Val<br>Phe<br>85<br>Phe<br>Gly<br>Glu | Glu Asp Ala Leu Gln 70 Lys Lys Asp Asp       | Glu Val Thr Pro 55 Cys Ser Asp Thr Gly 135   | Leu Asn Tyr 40 Val Phe Ala Asp Leu 120 Asn | Gly<br>25<br>Gly<br>Pro<br>Ser<br>Met<br>Gly<br>105<br>Val | 10<br>His<br>Lys<br>Trp<br>Arg<br>Pro<br>90<br>Asn<br>Asn<br>Leu | Lys Leu Pro Tyr 75 Glu Tyr Arg        | Phe Thr Thr 60 Pro Gly Lys Ile His 140 | Ser Leu 45 Leu Asp Tyr Thr Glu 125 Lys | Val<br>30<br>Lys<br>Val<br>His<br>Val<br>Arg<br>110<br>Leu | 15<br>Ser<br>Phe<br>Thr<br>Met<br>Gln<br>95<br>Ala<br>Lys<br>Glu | Gly Ile Thr Lys 80 Glu Glu Gly Tyr |     |

| Val        | Gln        | Leu              | Ala<br>180                           | Asp        | His              | Tyr        | Gln              | Gln<br>185       | Asn        | Thr        | Pro        | Ile              | Gly<br>190       | Asp        | Gly        |     |
|------------|------------|------------------|--------------------------------------|------------|------------------|------------|------------------|------------------|------------|------------|------------|------------------|------------------|------------|------------|-----|
| Pro        | Val        | Leu<br>195       | Leu                                  | Pro        | Asp              | Asn        | His<br>200       | Tyr              | Leu        | Ser        | Thr        | Gln<br>205       | Ser              | Ala        | Leu        |     |
| Ser        | Lys<br>210 | Asp              | Pro                                  | Asn        | Glu              | Lys<br>215 | Arg              | Asp              | His        | Met        | Val<br>220 | Leu              | Leu              | Glu        | Phe        |     |
| Val<br>225 |            | Ala              | Ala                                  | Gly        | Ile<br>230       |            | Leu              | Gly              | Met        | Asp<br>235 |            | Leu              | Tyr              | Lys        |            |     |
|            | <2<br><2   | 212>             | 3<br>720<br>DNA<br>Aequoria Victoria |            |                  |            |                  |                  |            |            |            |                  |                  |            |            |     |
|            | <2         |                  | •                                    |            |                  |            |                  |                  |            |            |            |                  |                  |            |            |     |
|            | <4         | 100>             | 3                                    |            |                  |            |                  |                  |            |            |            |                  |                  |            |            |     |
|            |            |                  |                                      |            | gag<br>Glu       |            |                  |                  |            |            |            |                  |                  |            |            | 48  |
| gtc<br>Val | gag<br>Glu | ctg<br>Leu       | gac<br>Asp<br>20                     | ggc<br>Gly | gac<br>Asp       | gta<br>Val | aac<br>Asn       | ggc<br>Gly<br>25 | cac<br>His | aag<br>Lys | ttc<br>Phe | agc<br>Ser       | gtg<br>Val<br>30 | tcc<br>Ser | ggc<br>Gly | 96  |
| gag<br>Glu | ggc<br>Gly | gag<br>Glu<br>35 | ggc<br>Gly                           | gat<br>Asp | gcc<br>Ala       | acc<br>Thr | tac<br>Tyr<br>40 | ggc<br>Gly       | aag<br>Lys | ctg<br>Leu | acc<br>Thr | ctg<br>Leu<br>45 | aag<br>Lys       | ttc<br>Phe | atc<br>Ile | 144 |
|            |            |                  |                                      |            | ctg<br>Leu       |            |                  |                  |            |            |            |                  |                  |            |            | 192 |
|            |            |                  |                                      |            | cag<br>Gln<br>70 |            |                  |                  |            |            |            |                  |                  |            |            | 240 |
|            |            |                  |                                      |            | aag<br>Lys       |            |                  |                  |            |            |            |                  |                  |            |            | 288 |
|            |            |                  |                                      |            | aag<br>Lys       |            |                  |                  |            |            |            |                  |                  |            |            | 336 |
|            |            |                  |                                      |            | gac<br>Asp       |            |                  |                  |            |            |            |                  |                  |            |            | 384 |
|            |            |                  |                                      |            | gac<br>Asp       |            |                  |                  |            |            |            |                  |                  |            |            | 432 |
|            |            |                  |                                      |            | aac<br>Asn       |            |                  |                  |            |            |            |                  |                  |            |            | 480 |

160 155 150 145 528 ggc atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser 165 gtg cag etc gec gae cae tae cag cag aac ace eec atc gge gae gge 576 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly 180 624 ccc gtg ctg ctc ccc gac aac cac tac ctg agc acc cag tcc gcc ctg Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu 200 age aaa gae eec aac gag aag ege gat eac atg gte ete eta ggg tte 672 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Gly Phe 220 215 210 gtg acc gcc gcc ggg atc act ctc ggc atg gac gag ctg tac aag 717 Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys 235 225 230 720 taa <210> 4 <211> 239 <212> PRT <213> Aequoria Victoria <400> 4 Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly 25 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile 40 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr 55 Leu Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys 75 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu 90 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 105 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly 125 120 Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr 130 Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn 155 150 Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser 170 165 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly 190 185 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu 205

195 200 205 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Gly Phe

| Val<br>225        | 210<br>Thr        |                    | Ala               | Gly               | Ile<br>230        |                   |                   | Gly               | Met               | Asp<br>235        |                   |                   | Tyr               | Lys               |                   |     |
|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|
|                   | <                 | 212>               | 717<br>DNA        |                   | a Vi              | ctor              | ia                |                   |                   |                   |                   |                   |                   |                   |                   |     |
|                   | <                 |                    | CDS               |                   | 714)              |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |     |
| atg<br>Met<br>1   | agt               | 400><br>aaa<br>Lys | gga               | gaa<br>Glu<br>5   | gaa<br>Glu        | ctt<br>Leu        | ttc<br>Phe        | act<br>Thr        | gga<br>Gly<br>10  | gtt<br>Val        | gtc<br>Val        | cca<br>Pro        | att<br>Ile        | ctt<br>Leu<br>15  | Val               | 48  |
| gaa<br>Glu        | tta<br>Leu        | gat<br>Asp         | ggc<br>Gly<br>20  | gat<br>Asp        | gtt<br>Val        | aat<br>Asn        | ggg<br>Gly        | caa<br>Gln<br>25  | aaa<br>Lys        | ttc<br>Phe        | tct<br>Ser        | gtt<br>Val        | agt<br>Ser<br>30  | gga<br>Gly        | gag<br>Glu        | 96  |
| ggt<br>Gly        | gaa<br>Glu        | ggt<br>Gly<br>35   | gat<br>Asp        | gca<br>Ala        | aca<br>Thr        | tac<br>Tyr        | gga<br>Gly<br>40  | aaa<br>Lys        | ctt<br>Leu        | acc<br>Thr        | ctt<br>Leu        | aaa<br>Lys<br>45  | ttt<br>Phe        | att<br>Ile        | tgc<br>Cys        | 144 |
| act<br>Thr        | act<br>Thr<br>50  | ggg<br>Gly         | aag<br>Lys        | cta<br>Leu        | cct<br>Pro        | gtt<br>Val<br>55  | cca<br>Pro        | tgg<br>Trp        | cca<br>Pro        | acg<br>Thr        | ctt<br>Leu<br>60  | gtc<br>Val        | act<br>Thr        | act<br>Thr        | ctc<br>Leu        | 192 |
| tct<br>Ser<br>65  | tat<br>Tyr        | ggt<br>Gly         | gtt<br>Val        | caa<br>Gln        | tgc<br>Cys<br>70  | ttt<br>Phe        | tct<br>Ser        | aga<br>Arg        | tac<br>Tyr        | cca<br>Pro<br>75  | gat<br>Asp        | cat<br>His        | atg<br>Met        | aaa<br>Lys        | cag<br>Gln<br>80  | 240 |
| cat<br>His        | gac<br>Asp        | ttt<br>Phe         | ttc<br>Phe        | aag<br>Lys<br>85  | agt<br>Ser        | gcc<br>Ala        | atg<br>Met        | ccc<br>Pro        | gaa<br>Glu<br>90  | ggt<br>Gly        | tat<br>Tyr        | gta<br>Val        | cag<br>Gln        | gaa<br>Glu<br>95  | aga<br>Arg        | 288 |
| act<br>Thr        | ata<br>Ile        | ttt<br>Phe         | tac<br>Tyr<br>100 | aaa<br>Lys        | gat<br>Asp        | gac<br>Asp        | gly<br>ggg        | aac<br>Asn<br>105 | tac<br>Tyr        | aag<br>Lys        | aca<br>Thr        | cgt<br>Arg        | gct<br>Ala<br>110 | gaa<br>Glu        | gtc<br>Val        | 336 |
| aag<br>Lys        | ttt<br>Phe        | gaa<br>Glu<br>115  | ggt<br>Gly        | gat<br>Asp        | acc<br>Thr        | ctt<br>Leu        | gtt<br>Val<br>120 | aat<br>Asn        | aga<br>Arg        | atc<br>Ile        | gag<br>Glu        | tta<br>Leu<br>125 | aaa<br>Lys        | ggt<br>Gly        | att<br>Ile        | 384 |
| gat<br>Asp        | ttt<br>Phe<br>130 | aaa<br>Lys         | gaa<br>Glu        | gat<br>Asp        | gga<br>Gly        | aac<br>Asn<br>135 | att<br>Ile        | ctt<br>Leu        | gga<br>Gly        | cac<br>His        | aaa<br>Lys<br>140 | atg<br>Met        | gaa<br>Glu        | tac<br>Tyr        | aat<br>Asn        | 432 |
| tat<br>Tyr<br>145 | aac<br>Asn        | tca<br>Ser         | cat<br>His        | aat<br>Asn        | gta<br>Val<br>150 | tac<br>Tyr        | atc<br>Ile        | atg<br>Met        | gca<br>Ala        | gac<br>Asp<br>155 | aaa<br>Lys        | cca<br>Pro        | aag<br>Lys        | aat<br>Asn        | ggc<br>Gly<br>160 | 480 |
| atc<br>Ile        | aaa<br>Lys        | gtt<br>Val         | aac<br>Asn        | ttc<br>Phe<br>165 | aaa<br>Lys        | att<br>Ile        | aga<br>Arg        | cac<br>His        | aac<br>Asn<br>170 | att<br>Ile        | aaa<br>Lys        | gat<br>Asp        | gga<br>Gly        | agc<br>Ser<br>175 | gtt<br>Val        | 528 |

|            |            |                              |            |            |            |            |            |            |            |            | att<br>Ile        |            |            |            |            | 576 |
|------------|------------|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------------|------------|------------|------------|------------|-----|
| _          |            |                              |            | _          |            |            |            |            |            | -          | caa<br>Gln        |            |            |            |            | 624 |
|            |            |                              |            |            |            |            |            |            |            |            | ctt<br>Leu<br>220 | Leu        |            |            |            | 672 |
|            |            |                              |            |            |            |            |            |            |            |            | ggg               |            |            |            |            | 714 |
| taa        |            |                              |            |            |            |            |            |            |            |            |                   |            |            |            |            | 717 |
|            | <2<br><2   | 210><br>211><br>212><br>213> | 238<br>PRT | ıoria      | a Vio      | ctori      | La         |            |            |            |                   |            |            |            |            |     |
| Mot        |            | 100>                         |            | Glu        | Glu        | T.A.11     | Dha        | ሞh r       | Gl v       | Val        | Val               | Pro        | Tlo        | T.e.ii     | Vəl        |     |
| 1          |            | _                            | _          | 5          |            |            |            |            | 10         |            |                   |            |            | 15         |            |     |
| Glu        | Leu        | Asp                          | Gly<br>20  | Asp        | Val        | Asn        | Gly        | Gln<br>25  | Lys        | Phe        | Ser               | Val        | Ser<br>30  | Gly        | Glu        |     |
| Gly        | Glu        | Gly<br>35                    | Asp        | Ala        | Thr        | Tyr        | Gly<br>40  | Lys        | Leu        | Thr        | Leu               | Lys<br>45  | Phe        | Ile        | Cys        |     |
| Thr        | Thr<br>50  | Gly                          | Lys        | Leu        | Pro        | Val<br>55  | Pro        | Trp        | Pro        | Thr        | Leu<br>60         | Val        | Thr        | Thr        | Leu        |     |
| Ser<br>65  |            | Gly                          | Val        | Gln        | Cys<br>70  |            | Ser        | Arg        | Tyr        | Pro<br>75  | Asp               | His        | Met        | Lys        | Gln<br>80  |     |
|            | Asp        | Phe                          | Phe        | Lys<br>85  |            | Ala        | Met        | Pro        | Glu<br>90  | _          | Tyr               | Val        | Gln        | Glu<br>95  |            |     |
| Thr        | Ile        | Phe                          | Tyr<br>100 |            | Asp        | Asp        | Gly        | Asn<br>105 |            | Lys        | Thr               | Arg        | Ala<br>110 |            | Val        |     |
| Lys        | Phe        | Glu<br>115                   |            | Asp        | Thr        | Leu        | Val<br>120 |            | Arg        | Ile        | Glu               | Leu<br>125 |            | Gly        | Ile        |     |
| Asp        | Phe<br>130 |                              | Glu        | Asp        | Gly        | Asn<br>135 | Ile        | Leu        | Gly        | His        | Lys<br>140        | Met        | Glu        | Tyr        | Asn        |     |
| Tyr<br>145 |            | Ser                          | His        | Asn        | Val<br>150 |            | Ile        | Met        | Ala        | Asp<br>155 | Lys               | Pro        | Lys        | Asn        | Gly<br>160 |     |
|            | Lys        | Val                          | Asn        | Phe<br>165 |            | Ile        | Arg        | His        | Asn<br>170 |            | Lys               | Asp        | Gly        | Ser<br>175 |            |     |
| Gln        | Leu        | Ala                          |            |            | Tyr        | Gln        | Gln        | Asn<br>185 |            | Pro        | Ile               | Gly        | Asp        |            | Pro        |     |
| Val        | Leu        | Leu<br>195                   | 180<br>Pro | Asp        | Asn        | His        | Tyr<br>200 |            | Ser        | Thr        | Gln               | Ser<br>205 |            | Leu        | Ser        |     |
| Lys        | Asp<br>210 |                              | Asn        | Glu        | Lys        | Arg<br>215 |            | His        | Met        | Ile        | Leu<br>220        |            | Glu        | Phe        | Val        |     |
| Thr<br>225 |            | Ala                          | Gly        | Ile        | Thr<br>230 |            | Gly        | Met        | Asp        | Glu<br>235 | Gly               | Tyr        | Lys        |            |            |     |

| <211><br><212><br><213>                  | DNA                       | a Victor                  | ia                      |                        |                      |                          |                   |                  |                  |     |  |  |  |
|--|---------------------------|---------------------------|-------------------------|------------------------|----------------------|--------------------------|-------------------|------------------|------------------|-----|--|--|--|
| <220><br><221><br><222>                  | CDS (1)(717)              |                           |                         |                        |                      |                          |                   |                  |                  |     |  |  |  |
| <400><br>atg agt aaa<br>Met Ser Lys<br>1 | gga gaa                   |                           |                         |                        |                      |                          |                   |                  |                  | 48  |  |  |  |
| gaa tta gat<br>Glu Leu Asp               | ggc gat<br>Gly Asp<br>20  | gtt aat<br>Val Asn        | Gly G                   | aa aaa<br>ln Lys<br>25 | ttc t<br>Phe S       | ct gtt<br>Ser Val        | agt<br>Ser<br>30  | gga<br>Gly       | gag<br>Glu       | 96  |  |  |  |
| ggt gaa ggt<br>Gly Glu Gly<br>35         | gat gca<br>Asp Ala        | aca tac<br>Thr Tyr        | gga aa<br>Gly Ly<br>40  | aa ctt<br>ys Leu       | acc c<br>Thr L       | ett aaa<br>Leu Lys<br>45 | ttt<br>Phe        | att<br>Ile       | tgc<br>Cys       | 144 |  |  |  |
| act act ggg<br>Thr Thr Gly<br>50         | aag cta<br>Lys Leu        | cct gtt<br>Pro Val<br>55  | cca to                  | gg cca<br>rp Pro       | acg c                | ett gtc<br>Seu Val<br>60 | act<br>Thr        | act<br>Thr       | ctc<br>Leu       | 192 |  |  |  |
| tct tat ggt<br>Ser Tyr Gly<br>65         | gtt caa<br>Val Gln        | tgc ttt<br>Cys Phe<br>70  | tct ac<br>Ser Ai        | ga tac<br>rg Tyr       | cca g<br>Pro A<br>75 | at cat<br>sp His         | atg<br>Met        | aaa<br>Lys       | cag<br>Gln<br>80 | 240 |  |  |  |
| cat gac ttt<br>His Asp Phe               | ttc aag<br>Phe Lys<br>85  | Ser Ala                   | atg co<br>Met Pi        | cc gaa<br>ro Glu<br>90 | ggt t<br>Gly T       | at gta<br>'yr Val        | cag<br>Gln        | gaa<br>Glu<br>95 | aga<br>Arg       | 288 |  |  |  |
| act ata ttt<br>Thr Ile Phe               | tac aaa<br>Tyr Lys<br>100 | gat gac<br>Asp Asp        | Gly As                  | ac tac<br>sn Tyr<br>05 | aag a<br>Lys T       | ca cgt<br>hr Arg         | gct<br>Ala<br>110 | gaa<br>Glu       | gtc<br>Val       | 336 |  |  |  |
| aag ttt gaa<br>Lys Phe Glu<br>115        | ggt gat<br>Gly Asp        | acc ctt<br>Thr Leu        | gtt aa<br>Val As<br>120 | at aga<br>sn Arg       | atc g<br>Ile G       | ag tta<br>lu Leu<br>125  | aaa<br>Lys        | ggt<br>Gly       | att<br>Ile       | 384 |  |  |  |
| gat ttt aaa<br>Asp Phe Lys<br>130        | gaa gat<br>Glu Asp        | gga aac<br>Gly Asn<br>135 | att ct<br>Ile Le        | tt gga<br>eu Gly       | His L                | aa atg<br>ys Met<br>40   | gaa<br>Glu        | tac<br>Tyr       | aat<br>Asn       | 432 |  |  |  |
| tat aac tca<br>Tyr Asn Ser<br>145        |                           |                           |                         | et Ala                 |                      |                          |                   |                  |                  | 480 |  |  |  |
| atc aaa gtt<br>Ile Lys Val               |                           |                           |                         |                        |                      |                          | Gly               |                  |                  | 528 |  |  |  |
| caa tta gca<br>Gln Leu Ala               | gac cat<br>Asp His<br>180 | tat caa<br>Tyr Gln        | caa aa<br>Gln As<br>18  | sn Thr                 | cca a<br>Pro I       | le Gly                   | gat<br>Asp<br>190 | ggc<br>Gly       | cct<br>Pro       | 576 |  |  |  |

| - |   |   | _ |   | cat<br>His        |   | _ |   | _ |  | _ |   | 624 |
|---|---|---|---|---|-------------------|---|---|---|---|--|---|---|-----|
|   | _ |   | _ | - | aga<br>Arg<br>215 | - |   | _ |   |  |   | - | 672 |
|   | - | _ |   |   | cat<br>His        |   | _ | - | - |  |   |   | 717 |

<210> 8

<211> 238

<212> PRT

<213> Aequovia Victoria

<400> 8

Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly Gln Lys Phe Ser Val Ser Gly Glu 25 Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys 40 Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg 85 Thr Ile Phe Tyr Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val 105 Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile 120 Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Met Glu Tyr Asn 135 Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro Lys Asn Gly 155 150 Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly Ser Val 165 170 Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro 185 Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser 200 205 Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Gly Phe Val 215 Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys